

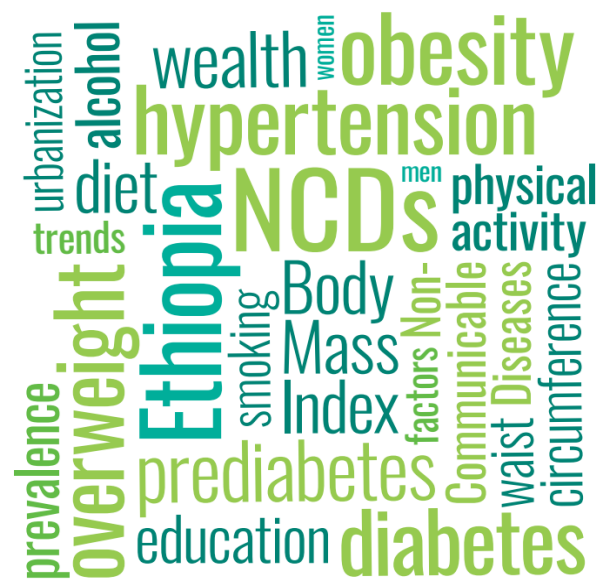
The Rise in Overweight, Obesity and Nutrition-Related Non-Communicable Diseases in Ethiopia: A Call for Action

EXECUTIVE SUMMARY

In Ethiopia, the prevalence of overweight, obesity, and nutrition-related non-communicable diseases (NR-NCDs) such as hypertension and diabetes has been increasing considerably in the past decade. NCDs account for 70% of all global deaths annually. Moreover, rates of overweight/obesity, which are risk factors for NR-NCDs, have nearly tripled over the last half-century.

This brief describes: i. the trends and factors driving overweight/obesity among women of reproductive age (WRA), and ii. the factors associated with hypertension and prediabetes/diabetes among males and females in Ethiopia.

We observed a significant increase in overweight/obesity particularly among urban women (an increase from 11% in 2000 to 21% in 2016). A rise in wealth was the main driver of the change in the prevalence of overweight/obesity between 2000 and 2016, accounting for 62% and 63% of the increase in rural and urban women, respectively. Education was protective among urban women, with increased educational attainment contributing to a 16% decline in the prevalence of overweight/obesity. Additional contributors to the rise in overweight/obesity prevalence were an increase in the engagement in more sedentary occupations and increased screen time. Our analysis of factors showed that body mass index (BMI) and waist circumference were positively associated with hypertension and prediabetes/diabetes in both males and females. In contrast, an increase in educational attainment was negatively associated with hypertension and prediabetes/diabetes in both sexes. While residing in an urban setting was positively associated with hypertension in both



sexes, it was only associated with prediabetes/diabetes in males. Males and females in pastoralist areas were less likely to present with prediabetes/diabetes compared to their agrarian counterparts. Physical activity was negatively associated with prediabetes/diabetes among females only. We also observed that fruit and vegetable intake was low, with only 5% of males and females consuming the recommended five or more servings daily. Additionally, 96% consumed more than the recommended 5g of salt per day. None of these diet-related factors were associated with hypertension and prediabetes/diabetes, which was likely due to the lack of variability in the data.

Our findings highlight the need to implement interventions that promote healthy eating and increase physical activity among urban residents.

THE PROBLEM

NCDs account for 70% of all global deaths annually¹. Moreover, rates of overweight/obesity, which are risk factors for NR-NCDs, have nearly tripled over the last half-century². In Ethiopia, the prevalence of overweight, obesity, and associated NR-NCDs such as hypertension and diabetes have been increasing considerably in the past decade³⁻⁵. Despite improvements in access to health services, NCDs are replacing communicable diseases as the leading causes of mortality in Ethiopia. For example, in 2019, cardiovascular diseases were the second leading cause of death in Ethiopia¹. To reduce the rise in NR-NCDs and to identify target groups and priority interventions, it is important to

understand the magnitude of the NR-NCD burden, how it has changed over time, and which factors are associated with NR-NCDs. Therefore, this brief aims to describe:

- i. The trends and factors associated with overweight/obesity among WRA (15-49 years) in Ethiopia between 2000-2016, and
- ii. The factors associated with hypertension and prediabetes/diabetes among males and females (15-69 years) in Ethiopia.

BOX 1: METHODOLOGY

Data sources

- To assess trends and factors associated with overweight and obesity, we used data from 27,123 WRA included in the four rounds of the Ethiopia Demographic and Health Survey (EDHS) (2000, 2005, 2011 and 2016)^{3,4,6,7}.

- To identify factors associated with hypertension and prediabetes/diabetes, we used data from the Ethiopia STEPwise approach to Surveillance (STEPS) Non-communicable Disease Risk Factors survey (NCD STEPS)⁵. The NCD Steps survey was conducted in 2015 on a nationally representative sample. A total of 5,823 females and 3,977 males were included in our analysis.

Data analysis

To inform the data analysis plan, we identified factors associated with overweight, obesity and NR-NCDs via a systematic review of the literature. These were then incorporated into causal path diagrams which were discussed and validated through expert consultations.

KEY FINDINGS

Part 1: The burden of overweight, obesity and NR-NCDs.

OVERWEIGHT/OBESITY RATES ARE RISING PARTICULARLY AMONG URBAN WOMEN AND THE BURDEN OF NR-NCDs IS HIGH BOTH IN MALES AND FEMALES.

Nationally, overweight/obesity among WRA showed a 5% increase between 2000 and 2016 (**Figure 1**). However, the increase was larger amongst urban WRA, increasing from 11% in 2000 to 21% in 2016, with a marked increase between 2011 and 2016 (15% vs 21%). Nationally, hypertension and prediabetes/diabetes prevalence were similar between the two sexes, at approximately 17% and 11%, respectively (**Figure 2A**). The prevalence of hypertension was markedly higher among urban residents (**Figure 2B**).

Figure 1: Trends in overweight and obesity among WRA between 2000 and 2016

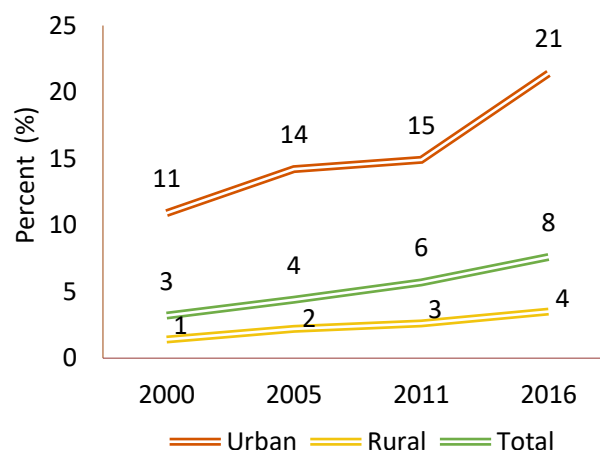


Figure 2A: The burden of hypertension and prediabetes/diabetes by sex

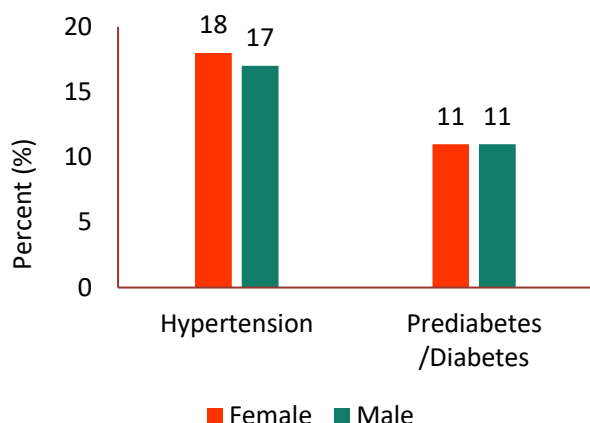
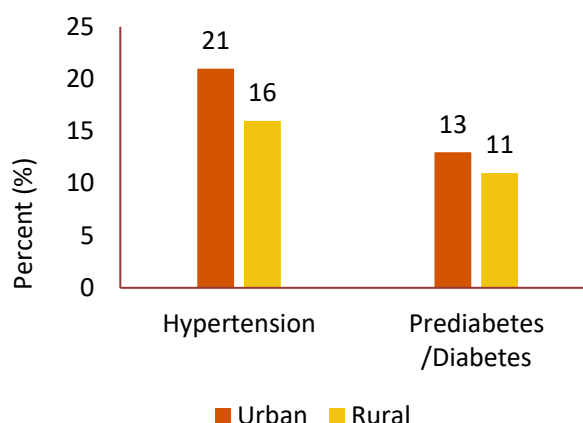


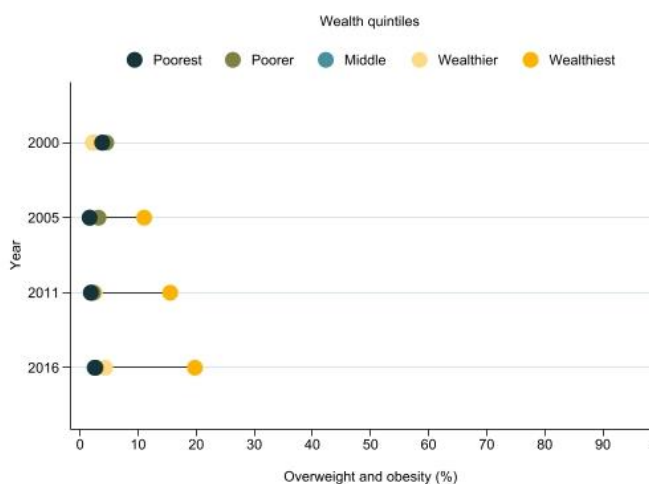
Figure 2B: The burden of hypertension and prediabetes/diabetes by residence



ECONOMIC AND REGIONAL DIFFERENCES EXIST IN THE MAGNITUDE OF OVERWEIGHT/OBESITY

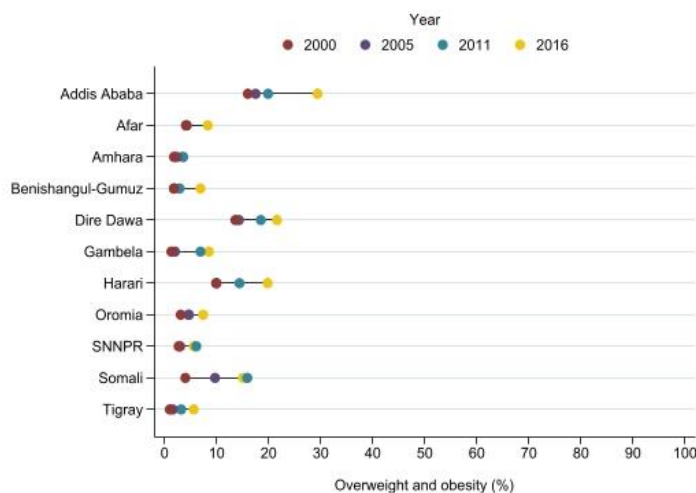
The difference in the prevalence of overweight/obesity between the poorest and the wealthiest women increased from 1.5% in 2000 to 17% in 2016 (Figure 3A). Additionally, the magnitude of overweight/obesity was highest in the wealthiest income group.

Figure 3A: Change in overweight and obesity by wealth quintiles over the period 2000-2016



The prevalence of overweight/obesity did not show a large increase between 2000 and 2005 for most regions except for Somali region where it increased from 4% in 2000 to 10% in 2005 (Figure 3B). However, between 2011 and 2016, rates of overweight/obesity increased markedly in Addis Ababa (20% to 29%) and Harari (14% to 20%).

Figure 3B: Change in overweight and obesity by region over the period 2000-2016



Part 2: Factors associated with overweight, obesity, and NR-NCDs.

AN INCREASE IN WEALTH BETWEEN 2000 AND 2016 DRIVES THE RISE IN OVERWEIGHT/OBESITY AMONGST WOMEN

A rise in wealth between 2000 and 2016, accounted for 62% of the increase in overweight/obesity in WRA.

Additional contributors to the rise in overweight/obesity for urban women were a greater engagement in more sedentary occupations and an increase in screen time. Education was a protective factor; an improvement in educational attainment for WRA contributed to a reduction in overweight/obesity over time.

BODY SIZE, PHYSICAL ACTIVITY AND URBAN RESIDENCE ARE ADDITIONAL FACTORS THAT INFLUENCE HYPERTENSION AND PREDIABETES/DIABETES AMONGST MALES AND FEMALES

Our analysis showed that both males and females with a higher BMI and waist circumference were more likely to be hypertensive or present with prediabetes/diabetes (Figure 4). Urban residence was also a risk factor for hypertension and prediabetes/diabetes. In contrast, an increase in educational attainment resulted in a reduced likelihood of hypertension and prediabetes/diabetes in both males and females. Males and females residing in pastoralist areas were less likely to present with prediabetes/diabetes compared to their agrarian counterparts. In contrast, females in pastoralist areas were more likely to be hypertensive.

Overall, females who were more physically active were less likely to present with prediabetes/diabetes.

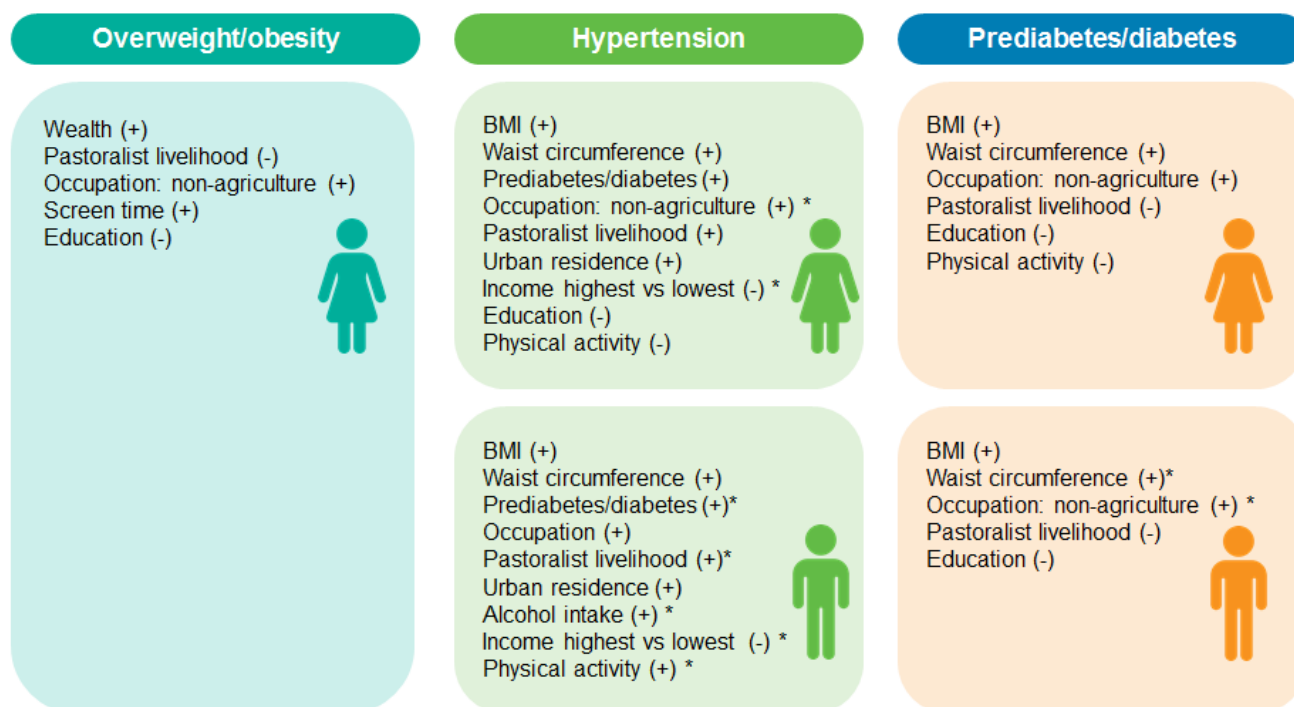
FRUIT AND VEGETABLE INTAKE WAS LOW

Consumption of fruit intake was low with only 5% consuming the recommended five or more servings of fruits daily. Similarly, only 8% of females and 7% of males consumed five or more servings of vegetables daily. Fruit and vegetable intake was not associated with hypertension or prediabetes/diabetes.

SALT INTAKE WAS HIGH

Elevated salt intake was high with 96% of males and females consuming more than the recommended 5g of salt per day. Similar to what we found with fruit and vegetable intake, salt intake was not associated with both hypertension and prediabetes/diabetes.

Figure 4: Map of factors influencing overweight/obesity, hypertension and prediabetes/diabetes in both males and females living in Ethiopia.



*Weak strength of evidence, (+): positive association, (-): negative association

ACTIONS TO PREVENT AND CONTROL THE RISE IN OVERWEIGHT/OBESITY, HYPERTENSION AND PREDIABETES/DIABETES

ACTION 1: PROMOTE HEALTHY EATING AND PHYSICAL ACTIVITY; AND REDUCE SEDENTARY TIME⁸.

Promotional activities should target urban residents to prevent further increase in overweight/obesity and NR-NCDs.

Healthy diets including increased consumption of fruits and vegetables and reduced consumption of unhealthy foods can be achieved through the following actions:

- Implement new agricultural and food system policies to support healthy diets and specifically increase production of fruits and vegetables.
- Develop food based dietary guidelines and monitor adherence to guidelines through periodic dietary intake assessment.
- Improve food environments through:
 - The implementation of policies that monitor the availability and marketing of unhealthy foods (i.e., energy-dense nutrient-poor foods, ultra-processed foods).
 - The implementation of policies that impose targeted taxation on unhealthy foods.
 - The implementation of food price policies and programs to increase economic access to healthy foods such as fruit and vegetables.

Healthy physical activity behaviors can be achieved through the following actions:

- Promote physical activity (moderate-to-vigorous intensity activities) by increasing public awareness of the health benefits associated with these.
- Improve the availability of facilities to promote physical activity, e.g., green spaces, gymnasiums.
- Implement workplace/school programs to promote physical activity.
- Develop national guidelines for physical activity for health.

ACTION 2: STRENGTHEN NCD SURVEILLANCE TO GENERATE EVIDENCE ON THE BURDEN OF NR-NCDs, RISK FACTORS AND EFFECTIVE INTERVENTIONS⁸.

High-quality and timely data are needed to inform the implementation of NR-NCDs programs and redesign some aspects of existing programs where necessary.

ACTION 3: INCORPORATE NCD SERVICES IN THE PRIMARY HEALTH CARE SYSTEM TO PREVENT AND CONTROL OVERWEIGHT, OBESITY AS WELL AS NR-NCDs.

NCD-related services should be incorporated into the healthcare system to mitigate the effect of NR-NCDs and to prevent further increases. For this to be implemented effectively, the following actions are needed:

- Improve the capacity of healthcare providers to incorporate NCD-related services into existing programs.
- Expand screening for overweight/obesity, hypertension, and diabetes in urban and rural settings.
- Expand the availability of diagnostic and treatment services for NR-NCDs.
- Ensure availability and affordability of essential medicines for diagnosis, treatment, and monitoring of NR-NCDs.

BOX 2: LIMITATIONS OF THE ANALYSIS

At the time of analysis, overweight/obesity and NR-NCD data were not available beyond 2016. Thus, it was not possible to describe the burden of the conditions beyond 2016. The format of the available dietary factors (such as fruit, vegetable, and salt intake) and the underlying lack of variability in these, may have obscured potential associations between dietary factors and NR-NCDs.

FURTHER INFORMATION

Currently, the NIPN team is preparing a manuscript from this study for publication. NIPN will make the study report available on the NIPN website. Please regularly check the NIPN website (<http://www.nipn.ephi.gov.et/>) for updates. Detailed descriptions of findings and statistical methods used are included in the research report.

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